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WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003WY11B

Title: Subsurface Drip Irrigation Systems: Assessment and Development of Best Management Practices

Project Type: Research

Focus Categories: Agriculture, Non Point Pollution, Management and Planning

Keywords: Agriculture, Crop Water Use, Irrigation Systems, Water Use Efficiency

Start Date: 03/01/2003

End Date: 02/29/2004

Federal Funds Requested: $24602.00

Matching Funds: $80792.00

Congressional District: 1

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Abstract: Development of best management practices (BMP) for irrigated agriculture has become essential because efficient use of water is crucial with the ongoing drought in Wyoming and because irrigated agriculture contributes to non-point source pollution of our ground and surface waters. Proper management of water and the appropriate application of fertilizers can increase agricultural productivity while minimizing water quality degradation. Microirrigation, such as subsurface drip irrigation (SDI), offers the opportunity for precise application of water and fertilizers. Such irrigation methods are being developed as environmentally-friendly farming practices and systems. In the proposed study, field experiments and computer modeling will be conducted to quantify both water and fertilizers uptake by crops, and the potential of nitrate leaching into ground water in subsurface drip and flood irrigated fields. Detailed field data and comprehensive numerical simulations will help us to understand many theoretical and technical questions in the applications of SDI. The study will provide the necessary information for developing and/or improving irrigation management to enhance crop (e.g. alfalfa) productivity and to minimize ground and surface water contamination.

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